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A LECTURE ON SANGUINEOUS TUMOURS

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BY M. ROUX.

Fungous or varicose sanguineous tumours, considered in a general point of view, present some analogy to aneurisms, and it is sometimes difficult to distinguish in this respect, what are the resemblances between these two affections, which are regarded as so essentially different? As you advance in your profession, become familiar with it practically, and your observation of morbid structures increases, you will recognize this principle, viz., that diseases have never naturally the same well-defined characters that you would expect to find in them, after reading their description in the dogmatical treatises. On the contrary, you will constantly find characters which approach them, and even link them together, so that we may say, what I have often remarked to you before, that there exists a great link in the science of human suffering, studied in nature. Thus, for example, in the fungous sanguine tumours you will find certain characters belonging to cancer. Besides the areolar and spongy texture belonging to these tumours, you observe a tissue somewhat melanic, liable to frequent and copious hemorrhages, terminating frequently in death; *vice versa* in tumours essentially cancerous, you often find characters belonging to other diseases, and particularly to sanguineous tumours, such as well marked arterial beating, frequent hemorrhages, a spongy tissue, &c., to such a degree indeed, that the most skilful practitioners are often deceived, and entirely misunderstand the true nature of the disease.

I recollect very well a foreign lady to whom I was called, during one of my voyages, a long time ago. She had upon the foot a tumour, which the surgeons of the country believed to be purely sanguineous, but which I thought was cancerous. I ventured even to propose an operation, which was acceded to and performed by myself. The patient recovered entirely. On examination the tumour presented characters common to the two affections.

The English call a *fungus hematodes*, a tumour which is not cancerous, but which has many characters belonging to those affections, as well as others attaching to tumours of a sanguineous nature. This is a sanguineous tumour entirely peculiar. In France we first accepted this new name, but, on better examining the disease, we found it to be only a sanguineous tumour, where the fungoid element predominated, and that it was useless to introduce into the science a new Greek-Latin name, to designate it. I myself believed, in particular, that no other denomination suited it better than that of fungoid tumour; for by it is better conveyed the idea of a fungous element, which is characteristic of the disease.

To come now to the points of resemblance which exist between sanguineous tumours proper, and aneurisms. Among the most simple tumours you will find many to consist in a cousiderable developement of the arteries in the neighbourhood, including the vascular capillaries. In aneurisms, on the contrary, there is an abnormal dilatation of one of the large vascular trunks, very often the principal vessel of the region; thus, in the two diseases there is considerable abnormal developement of the vessels. Now for the analogy; in one the dilatation is confined to the capillaries; in the other it is a large vessel which is ordinarily enlarged; behold the difference. Some tumours are formed by the slow extravasation of blood escaping from the vessels, and mingling with the tissues in which it is effused to such a degree, as to form a mass; this is happily rare, for these tumours are of the gravest kind. Sometimes the walls of the vessels become penetrated with little holes, through which the blood oozes slowly, infiltrating the surrounding tissues, which imbibe it, and form fungous areolar tumours of a venous or arterial nature. This variety of tumours was first described by Pott, who, meeting with tumours in the popliteal region, which he at first considered of an aneurismal nature, found, after having dissected them, that he was mistaken, for that they did not positively present the characters of aneurism; and this great surgeon, in the exact description which he gave, distinguished very ably the difference between tumours apparently aneurismal, and ordinary aneurisms. Pelletan, in his Surgical Clinic, cites also some remarkable cases of tumours of this kind. What was said of arteries being sometimes found with holes through which the blood oozed and infiltrated the tissues, can be applied to the veins, whose walls are sometimes subject to the same alterations, and the blood escaping into the tissues, forms venous tumours of the same nature. There is, then, amongst all these affections, certain relations, which in a philosophic point of view, make us consider them as belonging all to the same family. The ordinary sanguine tumour results, as I have said, from the dilatation of a part of the vascular system; that is to say, of the vessels which occupy a particular region. They commence ordinarily by a dilatation of the vascular capillaries of this region; a dilatation which gradually and consecutively extends to the deeper seated vessels; and hence the developement of the tumour.

These tumours have received different names of late years; but I consider them all as more or less inexact, and think that of sanguine tumour is the best. Dupuytren called them erectile tumours, on account of their peculiar elastic nature, which name was adopted by his students and is still employed by a great number of surgeons of the present day. In spite of the great respect in which I hold the memory of this skilful surgeon, I own to you frankly that I consider this name as the worst of all. For, if it suits somewhat tumours of an arterial nature, in which this state of erithism is principally observed, it is entirely inapplicable to the venous variety which does not present this character. Besides, what comparison can be rigidly made between the erithism of these tumours, and the erection of the

genital organs, as the penis, clitoris, nipple, &c.? In these latter organs it is a physiological functional condition that we have to do with, whilst in sanguine lumours it is the pathological state of the vessels. Hence this denomination is bad under a philosophical point of view. For me the old name of fungous tumours, although not too precise, and not very scientific, is better, inasmuch as it gives us the prominent and essential features of the disease.

These tumours differ among themselves. 1st. As to their origin; some of them being developed in structures where nothing abnormal existed which could lead to the suspicion of the formation of the disease, and are produced under the influence of causes altogether inappreciable; others are formed under the influence of a pre-existing abnormal state; as, for example, the little spots on the skin constituting a large family of deformities, known as *nævi materni*. There are many kinds of nævi. There are some which necessarily, sooner or later, must give place to fungous tumours. Thus, to give you an example which you have lately had under your eyes, the little child that I recently cut for stone, has, a little above the exterior angle of the left eye a small rose spot, somewhat *piquetée*, which is slightly elevated above the surrounding skin, which certainly sooner or later will give rise to a fungous tumour, if means are not taken to ensure its removal.

The developement of these tumours consecutive to *nævi materni* is sometimes slow, sometimes speedy. Certain periods of life seem to exercise a certain influence over them; thus it is a fact confirmed by observation that the approach of puberty in young girls is a cause which greatly contributes to the developement of these tumours. There is a remarkable case in support of this statement published in the *Clinique Chirurgicale* of Pelletan, and which I was enabled to follow in all its varieties, in the service of that surgeon.

Ordinarily, or very often, these congenital marks are seen on the superior portion of the body, that is upon the face, the neck, arms, &c. They are very often multiple. I have removed four sanguine tumours from the same individual, a young girl, and the operation succeeded perfectly; but the wounds were a long time in cicatrising, and left scars, more or less marked; the cicatrices were a little deformed. This fact I have frequently remarked; and it is well to be aware of it as a guide in the prognosis of this kind of operations. After what I have said upon the certainty that these organic spots on the skin are the germs of sanguine tumours of more or less gravity, it is easy to conceive that it is important to get rid of them as soon as possible. Children should be operated on early in life, in order to prevent consecutive tumours; and this can be accomplished in various ways, as by caustic, continued methodical compression, and by a cutting instrument. [M. Roux here mentioned the case of his own daughter who, when quite young, had a mark as large as a finger nail on her right temple, and which was cured by methodical compression, continued for a long time; the spot gradually disappeared; all that remained was a little circle, somewhat darker than the surrounding skin, but which disappeared entirely later. She was entirely cured, and reached the age of twenty-seven years without any return.]

The vermilion red spots you see are generally arterial in their nature, and give rise to arterial sanguine tumours, whilst the black spots are formed by the veins, and produce venous tumours.

When we consider the important connection between these tumours and consecutive sanguine tumours, it is evident that we cannot be in too great haste to remove them, especially as at their commencement the treatment is very simple and easy, it consisting in removing a small piece of the skin, an operation which presents no difficulty.

In general *nævi materni* present themselves in the form of flat spots rather than of prominent tumours, of various colours. It is from this kind of spots that sanguine tumours owe their origin. But this principle should not be taken in too absolute a sense. There are spots, a little above the level of the skin, which in time finish by becoming sanguine tumours also. I shall now give you some examples of this kind, in order that what I have said may be the better engraved on your memory. Deschamps, who was Surgeon in Chief of La Charité, before Boyer, had on his leg, since his birth, a nævus maternus, somewhat prominent, and having none of the characters of those spots, which give rise to sanguineous tumours. However, when he was advanced in life, and perhaps from the effect of friction, it became soft and fungous, acquired a considerable volume, and from time to time split, giving rise to considerable hemorrhages. Had it been a young person, an insignificant operation might have been performed which would have ridden him of this infirmity, but the great age of Deschamps prevented the surgeons, his friends, from entertaining this idea. A lady of the ancient and illustrious family of Montmorency, had upon the head a small congenital tumour, to which, when young, she paid no attention, but which enlarged as she advanced in life, and presented a well marked arterial pulse, and gave rise to severe hemorrhages. Had it not been for those about her, I should, in spite of her age, have insisted upon removing it by an operation, and I believe much advantage would have ensued from such a step, as she died a short time after, and I believe that this small tumour upon her head was not without its influence upon her death.

There are then besides true *nævi materni* other organic alterations of the skin, which can later transform themselves into genuine sanguine tumours, and require extirpation, or some other treatment. Some pathologists have also admitted that congenital spots may sometimes be developed in the thickness of the skin itself, in the cellular tissue. Wardrop, who has occupied himself particularly with this subject, has admitted *sub-cutaneous nævi materni*, which are developed in the sub-cutaneous cellular tissue, and in other parts. I have seen them in the mucous membranes only; as these membranes are of a rose colour more or less lively, the spots upon them are seen with difficulty. We had an example in the young person we shall operate on this morning. Besides a very evident varicose tumour of the lower lip, she has also a small tumour of the same nature upon the point of the tongue, and upon the deepest part of this lip, which is but scarcely visible. Some years since a lady from Bordeaux came to Paris, recommended to me, and who had a sanguineous tumour at the inferior part of the rectum; it was as large as a small apple, but was happily pediculated, although the pedicle was as large as the index finger. This tumour, closing up the anal orifice, interfered considerably with defecation, and produced general disturbance in the functions of the intestines. It was essentially arterial, pulsated strongly, having in fact all the characters of those tumours which are called now a-days erectile; on account of its pediculated form I employed a ligature. I used two ligatures, embracing in each one-half of the tumour. The patient was completely cured. The germ of

this tumour was probably one of those congenital spots of which I have spoken, and which on account of its position had not been perceived.

These tumours then may be situated on the surface of the skin, as well as in the deepest and most hidden portions of the organism; in the substance of the bones they have been frequently seen, and they have been called aneurisms of the bones. Scarpa, in his beautiful work on aneurism reports a remarkable case situated in the thickness of the superior portion of the tibia. I have also observed a sanguine tumour of this nature in the radius of an individual. I felt the pulsations through a thin lamina of the osseous substance, in the midst of which it was developed. I treated it first by a ligature of the brachial artery. I will here tell you by anticipation that this means of treatment, viz.: a ligature on the principal artery of the limb, never succeeds. As much as this method is useful in cases of genuine aneurisms, so does it fail in sanguine fungous tumours. In this case the ligature of the brachial artery failed, and we were obliged to resort to amputation of the limb.

Let us now study, in a few words, the essential differences which exist between these tumours themselves. Some in their evolution follow a course analogous to encephaloid tumours, and are difficult to distinguish from them. There are some which are essentially formed by the arteries, (as I have already told you,) and others by the veins; to the formation of others both orders of sanguine vessels concur. When J. L. Petit was occupying himself with this species of tumours, he admitted, in general, in the beautiful description he gave of them in his works, the veins only as constituent elements. This is erroneous, for there are many tumours which have no other constituent elements but the arteries; we must, therefore, believe that this great surgeon had only occasion to study those sanguine tumours called *venous*, or *varicose;* but these are only one species, and not the whole family of these important affections,

I find in the same way the term *aneurism by anastomosis* imperfect, a denomination which the English have given to certain aneurismal tumours, and which I believe to be better defined under the name of aneurismal varices. I discussed this question thoroughly in the account of my trip to London, in 1814, and still more so in a memoir which I published on the subject in the Dictionnaire de Medecine et Chirurgie Pratiques. I shall not stop here. In spite of these works and others, which have been published, there is much yet to do; it is a very rich mine for study. I have not yet seized perfectly well, for example, the differences between sanguine tumours, and false aneurisms.

The tumour of our little patient is essentially venous; it is not difficult to recognize it, and to distinguish it from arterial sanguine tumours. In these, (as I have already observed,) there are pulsations, synchronous with those of the arteries, propagating themselves to the principal vessels of the arterial system of the region, branches which concur to nourish the tumours by their blood. It is on account of these characters that this variety of tumours are called aneurismal, having in reality characters in common with this last affection.

[Here M. Roux presented several designs representing sanguineous tumours of the face, upon which he had operated in the course of his practice. He showed, 1st. The portrait of a little girl with a sanguineous tumour seated upon the right side of the nose, and invading a portion of the corresponding cheek, as far as its inferior portion. 2d. A design representing a young girl with a considerable venous sanguineous tumour of the superior lip, which extended to the middle portion of the right cheek; she was treated by means of needles thrust into the tumour, around which ligatures were passed.]

I have treated, said M. Roux continuing, another similar case in a young girl, and cured it by ligatures of the coronary, supraorbitar and other arteries, which reduced greatly the extent of the tumour, and I removed by excision what was left, which was of but little volume. Here is a drawing in which you see a fungous tumour developed in the right orbit, projecting under the superior eyelid, cured, at least by five-sixths, by means of a ligature to the primitive carotid. This region of the face is subject to this kind of tumours, the reason for which is not known. I have seen, for my part, a very large number. In this patient there was much that was really curious; he was somewhat savage, and uncivilized, (for, although of a certain station, he had always lived alone in the woods, isolated from society,) and would never submit to the hygienic prescriptions I gave him, after the ligature of the vessel; he went about, walking and eating as usual; no accident, however, happened to hinder the natural effects of the operation. The tumour diminished, as I said, by five-sixths, but the patient would go, and at his departure it still pulsated a little.

Treatment.—We are now-a-days much richer in therapeutic and operative means against these affections, than formerly; all these methods can be arranged in four groups, applicable to the several indications. The first which suggested itself to the mind, was to remove the tumour by means of a cutting instrument; here we acknowledge the necessity of carrying the incision beyond the limits of the disease, if a return is not wished for. J. L. Petit has strongly expressed this indication; he greatly insists on cutting the tissues, where the condition of the vessels is normal. This method, though still employed, is much less so than formerly, for other methods replace it in a number of cases. I shall return to it presently.

In the second may be placed all those means which will cause the disappearance of the tumour by pressure. This is sometimes very useful, and will cause them to disappear entirely; but they should not be too large, and they should rest upon a subjacent osseous surface, because compression is only efficacious when acting on a solid and resisting surface, and it is necessary too that it be continued for a long time. By the aid of this means the enlarged vessels gradually regain their former dimensions; a certain degree of inflammation takes place in the tissues, and transforms them into new tissues as it were, thus destroying the disease. In 1812, during a voyage that I made into Spain, a child was born in a family, with which I was intimately connected, with a blood mark on her breast. On my return to Paris the mother requested me to see the child immediately, as she was very uneasy about the mark, and its future character. Already it had increased in volume and formed a little tumour, situated just above the nipple. Before undertaking anything, as it cost me a great deal to use a cutting instrument, I wished to have the advantage of the opinion of Boyer. We agreed upon the utility of compression. I had a little plate made expressly, which, by means of a spring, could apply itself upon the whole tumour, and compress it within certain limits. In spite of this methodical and regular compression, and being well watched by me, the tumour increased, and pulsations were developed in it so strong, that they

could be felt in the arterial branches of the axilla. I became very uneasy, for I could not foresee the result. I then conferred with Boyer and other surgeons, and they were of opinion that the compression had better be removed, and that we should wait awhile. The tumour, left to itself, remained sometime stationary, then commenced to diminish, and in spite of the arrival of puberty, the period so often favorable to the developement of these kinds of tumours, continued constantly to diminish; and finished by completely disappearing, and was never reproduced. The individual is now married, and has children; I see her frequently, and I know positively that the cure of the tumour was radical. I designedly insist upon this circumstance, for the journals of the time, and some surgeons who published the fact, seemed to think that the disease reappeared later; which is entirely false.

In the third series we arrange all the means relating to ligature of the tumour, whether general, partial, or by needles, or by simple threads, etc. We now use the ligature entire, or have recourse to needles, by the aid of which you embrace a portion only of the tumour at the time. It has been thought, that you could advantageously tie the principal arteries which nourish the sanguine tumour, in the same way as in the treatment for aneurism. They have employed the method Hunter proposed for aneurisms; but it very often failed, especially in those cases of sanguine tumour, developed in the members; this method, on the contrary, seemed to succeed in those tumours developed in the orbit.

Sometimes we are obliged to eradicate sanguineous tumours, which have roots, by means of which they irradiate themselves here and there into the tissues. This is a good method whenever you can practise it without too much difficulty, and destruction of the surrounding parts. Still, however, we have been too long under the empire of the ancients in this regard, principally J. L. Petit. There was a little exaggeration on the part of this great surgeon, for experience proves they do not grow again near as often as those of other kinds, even when a trace of their presence is left in the tissues; ordinary suppurative inflammation takes place in these roots, and the tissues return to their normal condition. Ligature of the primitive carotid, for example, is indicated for those sanguine tumours situated in the orbit, because it is impossible to reach directly the vessels which surround and nourish the tumour. I have often given an explanation of this result, which has been adopted by authors and journals; this is it: Tumours which are developed in the orbit ought to have as their immediate source, or principal cause, the action of the ophthalmic artery, or some one of its branches; in tying the primitive carotid, you arrest, first, the flow of blood in the ophthalmic artery: now this artery constitutes a little arterial system apart; it has no communication with the other arterial systems, and loses itself, so to speak, spending itself in the eye and its appendages, so that the carotid artery being tied, the blood cannot easily enter the eye; consequently there is a great deal of chance of arresting the blood which flows in the tumours; which does not happen in the sanguineous tumours of the members, and which causes the ligature of the principal vessels communicating with the tumour to fail so often; for in this case the ligature of the principal vessels does not hinder the blood from circulating in the collateral branches of the affected member, and thus continue to nourish the tumour. Eight years ago a case worthy of note presented itself to me. A young girl had a sanguineous tumour of the epigastric region, placed in the midst of the muscles of that region, so that it seemed to be nourished immediately by the internal mammary and epigastric arteries. We then thought of treating it by a ligature of these two arteries. If it were now, I should greatly hesitate before adopting a similar treatment.

In the last group are placed all those various methods lately introduced into the science, and by means of which you are enabled to destroy the tumour without a bloody operation. This method is to produce a peculiar inflammation in the tumour capable of transforming it into a different tissue comparatively normal. I was the first to propose this method. It consists of cauterization, especially recommended by Wardrop, and the introduction of needles into the tumour, proposed by M. Lallemand, and followed with much success. The inflammation resulting from the employment of this method, causes softening in the diseased tissue; then a peculiar friability; then, the inflammation subsiding, a condensation of the tissues results, belonging to the natural condition.

All these methods have great advantages, and at the same time some inconveniences, so that you must understand the precise indications to employ them with advantage.

To no one of these methods, at present, can preference be given over the others, because they have not been employed long enough to enable us to form any comparative estimation of their value. M. Lallemand lauds greatly his needles and their ligatures; he assures us that he has obtained numerous and splendid results, and I believe him, because I have myself employed them with advantage; but still sufficient time has not yet elapsed since the employment of the method, for it to be definitely judged.

The same reflections may be made in regard to cauterization; I have tried it; it has sometimes succeeded, and sometimes failed.

It has also been proposed to tear up the cavities of the tumours, followed by an injection of an irritant liquid into these artificial cavities. By this method I am always fearful of producing too much inflammation, and I do not ordinarily employ it. You can besides multiply infinitely the operative methods, and means of treatment against this description of affection, but it is better to keep to those which are already known and have been submitted to the test of experience.

I shall now give you a summary of the case of the young girl that I am going to operate on. She is eighteen years of age, habitually of good health, and regular. From birth she had a small bluish tumour upon the lower lip. When quite young, it was perceived that her tongue was thicker on one side than the other, and presented at this point a bluish colour. The disease increased, though slowly, and now there is a tumour occupying two-thirds of the left side of the lower lip, and particularly the mucous membrane, which is pushed in front, and downwards, so that the cutaneous portion of the lip rests upon the chin. When the patient is quiet the tumour is about the size of the thumb; its surface is bluish-red, somewhat uneven and wrinkled; it is soft, and can be entirely reduced by compression. There is no pulsation in it. If, on the contrary, the patient makes any effort, which momentarily suspends her respiration, or throws her head forward, the size of the tumour doubles, equalling in size the egg of a pigeon; its colour becomes of a deep violet; it is shining, tense, without inequalities or wrinkles; resists pressure, but no pulsations are felt. The patient returning into a state of repose, the tumour regains its

original dimensions. This affection reaches to the posterior surface of the lip, as far as the gums, and extends on the left side to the internal portion of the cheek. The left half of the tongue is similarly affected, but during exercise its developement is not so great; speech and deglutition are not sensibly impeded.

[On the 3d of May, M. Roux operated, by thrusting through the tumour of the lip on the mucous side, several pins, surrounding them with threads; each ligature comprising the greatest thickness of the lip. He passed three times a red hot stylet horizontally into the tumour. After the operation the tumour swelled, and became tense and shining.

On the 10th, the pins being moveable, were withdrawn. The tumour was more resisting, and had acquired the consistence of flesh; its volume, however, was but slightly diminished. Towards the 18th, it became somewhat softer.

On the 9th of May, M. Roux determined to pass three setons through the base of the tumour of the lip with the same thread, which he introduced three times zig-zag from within outwards, and from without inwards. For several days afterwards the size of the tumour increased, and it became more resistant than before the operation. On the 13th of June a slight venous hemorrhage occurring, a ligature, including the free border of the lip to the internal margin of the tumour was applied, which was removed on the 15th, which had cut through a portion of the tissues, strangulated by the thread.

On the 9th of July M. Roux, seeing that the tumour was very much reduced in size, determined on removing a large part of it by means of a cutting instrument. He accordingly, with a pair of scissors, removed at a single sweep the whole portion contained within the mouth, leaving a mucous border to the extent of a centimetre, so as to have an ordinary lip. A great deal of venous blood was lost, the wound was stuffed with charpie and compressed against the dental arch. On the 10th of July the dressing was removed, and the wound found finely suppurating. The suppuration gradually diminished; cicatrization advanced; the wound was cauterized with the nitric acid of mercury. The lip was reduced to the same size as its fellow, the violet colour alone remaining. She was discharged on the 26th of August.]

Paris, August, 1843.

BIBLIOGRAPHICAL NOTICES.

Principles of Human Physiology, with their Applications to Pathology, Hygiène, and Forensic Medicine. Especially designed for the use of Students. With over One Hundred Illustrations. By WILLIAM B. CARPENTER, M. D., Lecturer on Physiology in the Bristol Medical School, &c. *First American Edition, with Additions by the Author, and Notes and Additions*, by MEREDITH CLYMER, M. D., Lecturer on the Institutes of Medicine, Physician to the Philadelphia Hospital, Fellow of the College of Physicians, &c. Philadelphia: Lea & Blanchard. 1843. 8vo. pp. 618.

Within the last ten years the whole aspect of the Science of Life has changed. The revival of the application of the Microscope, to the investigation of the solid and fluid constituents of the animal fabric, and the progress of Organic Chemistry, have contributed largely to this revolution. An improved apparatus, and an advanced condition of physical science, guided by reason and reflection have enabled the Microscope to work out wonders in minute organization, and to reveal both structural and functional facts of the highest value. Restricted within proper limits, and confined to those who by organization and training are skilful manipulators, it will, as long as it is guided by mind, continue still to enlarge our knowledge on essential points, which without its aid would long remain in obscurity. To the prompt and determined march of Organic Chemistry no small share of the recent successes of Physiology are due; not that we think that the laws of life are the laws of Chemistry; far from it; for we believe that no elucidation of the truly vital processes of the economy will ever be afforded by Chemistry; but light, however, may be thrown by it on many of the organic phenomena, and we look upon it as a powerful adjuvant to Physiology, so long as it is contented to remain her handmaid, and aid her by its searching agency. An unphilosophical pretension on the part of some of the Organic Chemists has alarmed many sound physiologists; but enthusiasm or egotism on their part is no excuse for the indulgence of a pettish humour, which totally rejects their aid. We cannot do without them; and if they are arrogant and threatening, we must receive just so much from them as we want and believe to be to our purpose, and unscrupulously reject the dross. The writings of Liebig, praiseworthy and excellent in their *ensemble*, are notoriously deficient and crude in their details, and that morbid spirit for novelty so baneful to our science, gave much that was erroneous and objectionable a temporary circulation and notoriety entirely incommensurate with its merits. Still the speculations of the Professor of Giessen were useful, independent of their intrinsic value, which was often considerable, from their suggestive character, opening up new, interesting and important paths of inquiry.

This rapid advance of Physiology necessarily required new treatises, representing the actual condition of the science, and the work whose title heads this article is an endeavour to supply this want. The invaluable work of Müller, though presented to the American reader in a condensed form, does not still fulfil all the indications which are required by the student of physiology. It is too elaborate, and does not comprehend many new views of importance. The Physiology of Professor Wagner, is both too limited and too abstruse to become familiar with the American student, were it within his reach, and completed. An excellent work on Physiological Anatomy has recently been commenced by Professor Todd and Mr. Bowman, both names ranking high in science; but this is more a work on General Anatomy than Physiology, and moreover is issued in parts, one of which only has appeared in England, leaving the remainder to follow at indefinite periods, after age, perhaps, has somewhat impaired the value of the elder born. The Physiologies of Alison, Mayo, and Elliotson, though containing much that is excellent, especially the former, are in many respects behind the times. In our country we have had several original works on this branch of our science; that of Professor Dunglison ranks deservedly

high, and is especially distinguished for its faithful and impartial record of the progress of Physiology.

The scope of the Human Physiology of Dr. CARPENTER, is somewhat different from any of the works we have alluded to. It is a clear, compendious resumé of the existing state of Physiological Science, conceived and executed in a genuine philosophical spirit, and peculiarly adapted to the medical student. All the received facts of Physiology are presented in a well-digested form and lucid manner,and the deductions made from them show close reasoning, and a very impartial spirit. The author, though still a young man, has already won a high reputation in this department of medicine. His admirable and original work on General and Comparative Physiology, (see Medical Examiner, vol. ii. p. 233,) has reached a second edition; his numerous contributions to the British and Foreign Review, are generally known and commended; and his recent treatises on Animal and Vegetable Physiology, show varied and profound knowledge, and a discriminating spirit. In a literary point of view, the present work, as well as his other productions, are of a high order; his style is clear, precise and unostentatious, at times rising to positive elegance.

In the present edition numerous additions, and some alterations have been made by the Author and the American Editor. The Physiology of Cells, so important and engrossing a subject at the present moment, is treated of at length in all its relations with nutrition, secretion, and the formation of the tissues.

It is now admitted by every one that the true foundation of Medical Science is an adequate acquaintance with the structure and functions of the human body. The only basis of rational medicine is Physiology. Health is the rule; disease the exception. Pathology must be founded on Physiology; the offices of the different organs must be thoroughly understood, in order that any deviation or derangement may be readily detected; without this knowledge all our endeavours at ascertaining the function in fault will be indefinite and unsuccessful. "The physiologist alone can be the truly able practitioner;" says Dr. Marshall Hall, "That science alone, properly pursued and applied, and not what has been fallaciously, and I fear too often, denominated experience, can lead to a just diagnosis, unfold the nature of disease, suggest new remedies, and guide us in the employment of the old." In physiological medicine, mind and reason, the only true guides in any pursuit or conduct, are both exercised. The so-called system of observation, or the numerical method, which vainly endeavoured to throw these overboard, soon became stranded. This vast abortion, consisting of superstrata piled one above the other into a shapeless and unsightly mass, soon disgusted its original youthful and thoughtless advocates, and has consigned to just oblivion those who stolidly clung to their mishapen offspring.

NEW PRESERVATIVE FOR ANIMAL SUBSTANCES.—A French physician has addressed a paper to the Academy of Sciences on the power of a *syrup of iron* to preserve animal substances unchanged. This syrup is a combination of sugar and iron which does not decompose, crystallise, or ferment, at any temperature. Meats kept in this syrup diminish very little in weight,and resist the most active putrefactive agency.—*London Lancet.*

Medical History of the Expedition to the Niger, during the years 1841–42, *comprising an Account of the Fever which led to its abrupt Termination.* By JAMES ORMISTON MCWILLIAM, M. D., Senior Medical Officer of the Expedition, &c. London: 1843.

Some Account of the African Remittant Fever which occurred on Board of Her Majesty's Steam Ship Wilberforce, on the River Niger, and whilst engaged on Service on the Western Coast of Africa; comprising an Inquiry into the Causes of Disease in Tropical Climates. By MORRIS PRITCHETT, M. D.

In the 18th No. of the present volume of this Journal, we published a short communication from Dr. J. L. DAY, Colonial Physician at Monrovia, on the subject of the cause of the dreaded fever of the African coast. We have before us two highly interesting works, emanating from the late far famed and disastrous Niger expedition, which embody so much that is of the highest interest, that we propose to occupy our readers' attention for a little while, with some important details derived from them. In 1840 three small iron steam-ships, the Albert, London, and Wilberforce, built for river navigation, were fitted out by the British Government, chiefly to contribute to the extinction of the slave trade. The officers were well acquainted with the coast, and a large part of the crew consisted of blacks. The vessels were ventilated by the apparatus of Dr. Reid, by means of which the external atmosphere passing through an iron chamber on the upper deck, could be submitted to the influence of chemical agents. The needles were constructed under the eye of Professor Lloyd of Dublin, so that the influence of the iron was counteracted. In the month of June the vessels reached Sierra Leone, and there completed their crews, from the native Kroomen. They then entered the river, passed the Delta, and proceeded as far as Iddah, the entrance to the valley of the Niger. No case of fever occurred until the 4th of September, when it broke out almost simultaneously in the whole expedition, and did not abate until it was completely paralyzed. Out of the whole expedition there were only fifteen whites who were not attacked with fever in the Niger. With regard to the susceptibility of the negroes to the disease, there seems to be some difference of opinion between our authors. Dr. Pritchett states that those first attacked were men of colour, who had been selected for the business of watering and wooding, and intimates that the disease was of a severe character with them. Dr. McWilliam states, however, that out of one hundred and fifty-eight blacks, eleven only were affected, and these had been for some years out of their respective countries; that the disease was comparatively mild, and that in no instance did it prove fatal. Both agree that a temporary residence in a northern climate renders the negro less liable to resist the causes of disease in hot climates than the white man.

The nature and cause of the fever is fully and ably treated of by Dr. Pritchett. He discards the idea of malaria entirely, asserting that the atmosphere is identical in the wilds of Africa, or the crowded streets of London; at the level of the sea, and at an elevation of sixteen or seventeen thousand feet above the earth's surface. He asserts, amongst other arguments against the doc-

trine of malaria, that in South America, where you have vegetable matter in a state of decomposition under the influence of a high temperature, there is singular immunity from endemial disease. Among other theories he mentions the latest one—that of Professor Daniell, lately alluded to in this Journal. Having in April, 1840, examined some water from the rivers of the Western Coast of Africa, he detected sulphuretted gas, and immediately ascribed the disastrous epidemics to the influence of this agent. Dr. Pritchett tells us that as soon as they reached the coast of Africa, and on their way up and down the Niger, a rigid examination of the waters was made, the tests being sulphate of copper, nitrate of silver, solution of arsenic, ferrocyanate of potass, carbonate of lead, tartrate of antimony, and the terchloride of gold, and in no instance did they detect any trace of the gas in question. The sulphurretted hydrogen found by Professor Daniell arose from the decomposition of the water during its journey from Africa. Dr. Pritchett remarks that it is not necessary to journey to the mouths of the Niger and Gambia for this gas, as Thames water, kept long enough, will furnish it in abundance. But did it exist in the water this would be no evidence of its deleterious qualities. In the Wilberforce, sulphuretted hydrogen was several times freely evolved from the bursting of jars containing preserved meat; but on no occasion did any evil consequences ensue. The lecture room of the chemist would, were this the case, be often a fruitful source of disease, as well as the most healthful portion of this country, the neighbourhood of the Virginia Springs, together with other sulphur localities of the same nature, both in this country and abroad.

The climate of the Western Coast of Africa is very humid; this moist condition of the air is sometimes abated by the condensation of the vapour into rain, and then respiration is freer and the system feels less oppressed. Dr. P. thinks that remittent fever is a consequence of an effort of nature to restore the equilibrium of the various constituents of the frame, which atmospheric changes had deranged. He says that where the atmosphere between decks was dry, the crews suffered but little. Dr. P. has an original theory on the effect of electricity in the production of river fever, which we have not room to state here. From what he says humidity, with the depressing passions, together with solar influence, are no doubt the chief exciting causes.

To ward off the attacks of the African remittent fever, Dr. Pritchett lays much stress on not overfatiguing the men; in keeping up their spirits; in guarding them against too much exposure to the sun, or to the rain; and on nutritious food. The influence of humidity in producing the disease being recognised, its removal, cannot, he thinks, be too strongly insisted on. Stoves, placed in different parts of the ship, are the best means to keep her dry. The surface of the body should be carefully protected against the damp, chilling air. Our author prefers silk to flannel, from its more perfect non-conducting properties.

Dr. McWilliam has given a somewhat extended account of the invasion and symptoms of the disease. Its approach was often insidious. At first it was intermittent in its type, and then became remittent. Although there was rarely at the commencement a decided chill, the patients generally complained of chilliness. In the hot stage intense dyspnœa was common; but cephalalgia was the most prominent symptom. A subsidence of febrile action generally occurred at the end of three or four hours, and diaphoresis ensued. A disagreeable odour of the perspiration, particularly in the fatal cases, was noticed. The sweating continued from six to twelve hours, when the accession returned. Accessions did not observe any law of periodicity; the evening was perhaps the most common time. In a few instances the remissions were as complete as those in ague; but these were exceptions. The influence of critical days was not apparent. If there were no material improvement beyond the eighth or ninth day the prognosis was gloomy. On the third day the symptoms were aggravated, and at this time Dr. Pritchett states that on feeling the pulse, a hot uneasy sensation remained in the fingers, which could only be removed on washing. The most prominent contingent symptoms were delirium, yellowness of the skin, and convulsions. Petechiæ and sudamina were not observed in any case. In two fatal cases there were lived blotches on the feet and hands, extending to the abdomen and chest. Yellowness of the skin appeared in nineteen cases, thirteen of which were fatal. The average appearance of this symptom was the ninth day. The post mortem examinations were not very scrutinising. The following are the results of nine examinations.

"*Head.*—In two cases where the head was examined, softening was found in the corpus callosum and walls of the ventricles. In one case there was a small quantity of serous fluid in the base of the brain, and an unusual proportion in the ventricles. The dura mater was always sound. The pia mater in one case red and injected. No subarachnoid effusion was observed.

"*Thorax.*—The contents of the thorax were in nearly all cases healthy in appearance. Adhesions between the costal and pulmonary pleuræ were found in one instance, with tubercular deposits in the lungs in the state of induration. In another, a cartilaginous state of the tricuspid valves, with serous effusion in the left pleural sac.

"*Abdomen.*—The peritoneum and its processes, as well as the surface of the intestinal tube, had in general a bilious tinge.

"*The Stomach.*—In several cases the stomach contained from one to five ounces of yellowish-green fluid. The mucous coat was invariably softened, whether this fluid were present or not. In three cases lived patches were variously distributed over the inner surface of the stomach, becoming more distinct when the mucous tunic was scraped off, exhibiting stelliform nuclei in their centres. In two cases, the livid marks were arranged in the form of parallel streaks. These pathological appearances were chiefly in the splenic extremity of the stomach and near the pylorus. In one case there was remarkable venous arborescence on the exterior of the stomach, attended with general engorgement of the portal system. Small points of ulceration were observed in three cases, and slight thickening of the mucous lining in one instance only.

"*Duodenum.*—The lesions observed in the duodenum were of the same nature as those in the stomach, but much less marked. In one case the lower portion of this gut contained a yellowish secretion, of the consistence of mucus.

"*The Jejunum* was free from disease, and likewise the ileum, until within three feet of its lower end, where were observed softening of the mucous

lining generally and lived spots. A series of small ulcerations were seen in four cases. In one, the membrane was thickened, rough, and the ulcerations had nearly perforated the bowel; this case proved fatal by terminating in dysentery. The agminated glands of Peyer were distinct and enlarged in three cases.

"*Colon.*—The colon was usually nearly empty. On these occasions a dark, bilious, pultaceous matter was found in this portion of the tube, but in small quantity only; it was viscid and tenacious, adhering to the mucous tunic: where lividity or ulcerated points were found at the lower end of the ileum, the same lesions were seen to exist on the arch of the colon. Softening of the mucous coat was remarkable in three cases. In that of the case of dysentery already mentioned, there was softening of the tunic where it was not ulcerated, and induration and elevation round the edges of the ulcerated patches.

"*Liver.*—The liver was congested in one instance; larger than usual in two cases. It was anemious in two cases where the patients died early, and on two other occasions when death took place long subsequent to febrile action. In the latter cases this organ was of a pale gray colour, and had a dry appearance on being sliced. This condition was not confined to one lobe.

"*Gall-bladder.*—The gall-bladder was distended with bile of the colour and consistence of tar, in three cases; one of which was fatal on the third, one on the seventh, and the other on the ninth day. In another instance the gall-bladder was nearly filled with bloody bile. The man in this case died suddenly, many weeks after the fever had left him.

"The enlarged condition of Peyer's glands, which is regarded by Chomel and Louis as constant in the typhoid fever of France, occurred in three cases out of eight that were examined. In four cases, the subjects of which, with one exception, died early, slight ulcerations of the gastro-enteric mucous membrane were observed. This fact is worthy of attention, inasmuch as it would seem to imply that the cause of the river fever, in whichever way it is introduced into the system, induces an unhealthy action in mucous surfaces much more rapidly than even the low typhoid fevers of France. Chomel does not consider that ulcerations take place in typhoid fevers earlier than the twentieth day, when there is, also, softening of the mucous membrane around the follicles, or in that part of it which covers them. Louis found the patches of Peyer natural in twenty autopsies, made by himself, of yellow fever cases at Gibraltar, during the epidemic of 1828.

"*Spleen.*—In one case the spleen was enlarged, soft, and breaking down under the fingers; in another enlarged, gorged with blood, but firm. This viscus was not altered from the normal condition in the other cases examined. The *pancreas* was not in any case otherwise than natural. The *kidneys* were mottled and larger than usual on one occasion. The *bladder* was in general collapsed. A case in which bloody urine was voided, was not inspected."

With regard to treatment Dr. Pritchett found that the expectant method was the best.

The question of contagion is quickly disposed of. Dr. McWilliam states that no fact came under his notice affording the slightest evidence that the disease was communicable from one person to another. With regard to the question of one attack of river fever affording protection against a second, general experience seems wholly unfavourable to the opinion that any such immunity exists.

Elements of Chemistry, including the Applications of the Science in the Arts. With numerous illustrations. By Thomas Graham, F. R. S. L., and E. Professor of Chemistry in University College, London; President of the Chemical Society; Corresponding Member of the Royal Academies of Sciences of Berlin and Munich. *With Notes and Additions.* By Robert Bridges, M. D., Professor of General and Pharmaceutic Chemistry in the Philadelphia College of Pharmacy, and one of the Editors of the American Journal of Pharmacy. Philadelphia: Lea & Blanchard. 1843. 8vo. pp. 746.

The general principles of chemical philosophy have recently made so much progress, that a brief account of the present condition of that interesting and important branch of science would no doubt be acceptable to our readers. For some time past it has been our intention to offer a hasty sketch of the actual state of Chemistry, to note the chief advances it has made, and detail its more important discoveries. We had proposed to ourselves to seize the present occasion as the most fitting one, and, with the work of one who had done so much to advance the theory of the science, to enter at some length on the relation and discussion of the new views embodied in it. This pleasing task, however, we are at present obliged to forego, and postpone to another opportunity the concise review we had intended to give. Professor Graham justly ranks as the first of British philosophical chemists; no single individual in Great Britain, within the last fifteen years, has contributed so much to the advancement of Chemistry. His work is one of the most profound and comprehensive that has been published in any country; distinguished alike for the high order of mind which it shows, and the clear and concise manner in which all that it treats of is handled. To the advanced student, and as a book of reference, we can cordially recommend it. Many portions of it are, we fear, too abstruse for the ordinary student. We therefore could have wished the American Editor to have been somewhat less sparing of his annotations, and to have given us, in many places, somewhat more extended remarks and commentaries on many of the theoretical portions of the work—a task for which he was abundantly qualified, and which would materially have added to its value. It has undergone a faithful revision at his hands, and many judicious notes have been added. One part, only, of his labours are we disposed to regret. It is well known that the doctrine of compound radicles—that is, of combinations of two or more elements, which, in their chemical relations with other bodies, correspond with simple substances—has been extended by Professor Liebig to inorganic chemistry, and that the most hearty advocate of this view is Professor Graham, who has contributed largely to its more perfect elaboration. This binary theory of salts is at most, however, proposed in the present work as affording a simple and philosophical explanation of certain actions—as hypotheses which, for the present, at least, serve the purpose, until they are fully proven, or something more certain proposed in their stead. Now, in the chapter on the "Arrangement of the Elements of

Compounds," the American Editor, in lieu of adding any remarks of his own, illustrative or deprecatory, has placed without comment numerous extracts from Professor Hare's "Effort to refute the argument in favor of the existence in the Amphide Salts, of Radicals." We are sorry for this, for we think it will tend to obscure, in place of elucidating the subject under discussion, and at the same time give currency to illogical and unsound views. The learned professor has, we think, signally failed in grasping the bearings of the question, and has succeeded in enveloping it in an impenetrable mist.

FOREIGN CORRESPONDENCE.

PARIS, August 10, 1843.

The Academy of Sciences—Dr. Donné's Investigations of Milk—MM. Danger and Flandin's Researches on Poisoning by Copper—Pellagra—The Microscope and Test-tube—Hematology taking the place of Medicine—Mandl's Researches on the formation of the Tartar of the Teeth.

To the Editor of the Medical Examiner.

SIR,—Several of the recent meetings at the Academies of Science and of Medicine have been highly interesting.

At the session of Monday, the 24th ult., Dr. Donné read an interesting essay on milk, considered in relation to domestic economy and public hygiene. It appears that the adulterations of this article are becoming more grave and serious, and when the immense quantity daily consumed is considered, the importance of these investigations will be readily conceived. The milk furnished to the various hospitals of the metropolis is particularly vile. In place of yielding eight or ten per cent. of cream, as ordinary milk, it hardly gives three or four; it is besides very much diluted with water, and has generally been boiled. This latter precaution, in the actual state of science, seems necessary, to preserve it during hot weather, but it has also the inconvenience of rendering it indigestible. A milk-vender, talking to Dr. D., on the subject, and adverting to the present dearness of forage and consequent rise of milk in price, said,—"We ordinarily add water to our milk, but this year we add a little milk to our water." One cause of this sophistication is the low price paid to the hospital-furnishers, only nineteen centimes, (about three cents) a litre, (about a quart.) Anothor reason Dr. D. thinks, is the absence of any easy, quick, and exact means to detect the adulteration. Dr. D. has invented an instrument, the lastoscope, which, he thinks, meets the indication. He then enters into the consideration of various methods to ameliorate this state of things, and render this necessary commodity of medium purity. It is said that not less than four to five thousand litres of pure milk are daily brought to Paris; this is distributed to retail venders, and in their hands undergoes various modes of treatment. Most of the milk sold in Paris comes from a radius of from ten to fifteen leagues. The farmers are paid fifteen centimes the litre, by the wholesale merchants, who sell it again to the dealers for twenty or twenty-five centimes, who retail it to the consumers for twenty to twenty-five centimes the litre, according to its quality, the quantity of water added, and the quarter in which it is sold. Now, if milk could be transported like many other substances from any distance, without injury, competition would be greater, the price less, and a purer article furnished. The surest, simplest, and cheapest method to effect this is by ice; such is the efficacy of this means, that milk is preserved, without any trace of change, for more than fifteen days, whatever the character of the external temperature, the variations of the atmosphere, or its electric condition. The apparatus of tin, covered with wood, consists of two concentric cylinders, the interior one holding ice, the exterior one, twice the size, eontains the milk; both communicate exteriorly by openings and cocks. The value of those hospital observations based on a milk diet will be readily appreciated. The attention of the proper authorities will no doubt be called to diminish the fraud, and ameliorate the conditions of sale.

MM. Danger and Flandin are pursuing with ardor their toxicological researches. They have recently read at the Academy a very valuable memoir on poisoning by Copper. These young men, full of enthusiasm and independent in their position, have done, and will yet do much for the subject of mineral poisons. The present report has excited as much attention in the scientific world, as the famous one on arsenic, and was listened to with great attention and interest by the Academy, and was referred to the same committee, which examined their former researches. Among other matters of importance they have discovered a new symptom of poisoning by copper, which heretofore has been entirely overlooked by toxicologists. This is salivation, or rather a copious bronchial secretion, which exhibits itself ordinarily a few hours after poisoning, and in which the poison is found; thus revealing the means by which the economy frees itself from the noxious elements in the same manner as the kidneys eliminate arsenic and antimony. For nine months MM. Danger aud Flandin daily poisoned a dog with copper, and were never able to detect any evidence of the metal in the urine, the organs of the renal secretion appearing impenetrable to that metal. No traces of the poison were found in the bones or viscera. Their investigations have induced them to deny the presence of copper in a natural state in the human body. This result was obtained by direct analyses, much more delicate than those heretofore employed, as well as by physiological experiments analogous to those by which the same observers proved that there is not only no arsenic in the human organism, but that all poisonous substances are incompatible with a healthy condition of the organs. These experiments were to mix, during nine months with the food given to the dogs, sometimes the sulphate, sometimes the acetate of copper. The dose, each day accurately weighed, was gradually increased. They were enabled to take, without any effect on their health, ten centigrammes of copper in the twenty-four hours, given at their meals, so that the quantity taken of it in 263 days was not less than twenty-five grammes. During life no trace of the metal was detected in the urine, and after death none was found either in the bones, muscles, or viscera, although they were examined with the greatest care.

The success of cod liver oil in the treatment of the strumous affections of children, more particularly those

of the osseous system, induced Dr. Péreyra of Bordeaux to try its effects in phthisis pulmonalis, and, as he affirmed with considerable success. Dr. Trousseau has recently experimented with this treatment at the Neckar Hospital. The subjects selected were well-marked cases of the disease—there were bloody sputa, dulness of the summits of one of the lungs, gurgling respiration, with emaciation, night sweats, fever, and all the symptoms in fact, which make a hopeless prognostic. A considerable amelioration followed the use of the medicine;—to use the words of Dr. T., they coughed and spat less, and there was less fever, and fewer night sweats, but whether this was due to the season of the year (summer) or to the remedy, time and future experiments can alone determine.

Nothing can now be done in the way of diagnosis without the test tube and the microscope. The scalpel, physical exploration, the pulse, &c., all are forgotten; reagents, little furnaces, glass tubes, have taken their place. Enter an hospital and the first thing which strikes the eye is a little table, on which all the instruments of analytical medicine are placed. The pulse is touched, perhaps the lungs examined, all, however, for form's sake; and then the serious business of the day commences. An experimental bleeding (une saignée exploratrice) is made, to begin the investigations; after it has set, it is weighed, measured, calculated, formularised, and atomised, and then by a hundred thousandth of a milligramme they are enabled to distinguish the blood of phthisis from that of rheumatism. Blood is necessary to a patient, in order that you may be enabled to tell what is the matter with him. Some of the older practitioners, who are impenetrable to the advances of science, affect to be sometimes shocked at seeing an anemic patient, or one in the last stage of phthisis, daily losing the blood which they, in their ignorance, were in the habit of cherishing. But science now consists not in curing a patient, but in discovering the exact modifications his sanguine fluid has undergone.

That fearful malady, *pellagra*, so well known in Venitian Lombady, is exciting much attention here at present. The first case occurred some months since in the service of Dr. Gibert, at St. Louis, and was recognised by M. Théophile Roussel, one of the interns, who, during a residence in Italy, was enabled to observe it. Dr. Devergie presented a case to the Academy on the 25th ult., which was of some standing, but which had not been recognized by either Dr. Biett, or later by Dr. Cazenave. Another case is said to be in the wards of Dr. Gibert. This interesting disease is probably more common than is generally thought, and like glanders, since the attention of the profession has been called to it, will now be frequently met with. It seems that for some years past, [since 1818, and was then first observed in the Canton of La Teste—Ed. M. E.] it has prevailed in portions of Gascony. Dr. Leon Marchand read, on the 25th of July, a condensed memoir of intense interest on this disease at the Academy of Medicine. Since 1836 this physician has been actively engaged in the study of the affection. He has found it to prevail in low marshy districts, where the air is dry, the soil not sterile, and water scanty and bad. In the locations where pellagra is met with, vegetation is feeble, and the domestic animals are extremely thin and small. The general symptoms are an erythematous condition of the skin of the back of the hand, of the sides of the neck, and sometimes the face. General debility occurs sooner or later, with enfeebled nervous power, tending to idiocy. The disease declines on the approach of cold weather to re-appear in the spring. The first case, that of Dr. Gibert, died. Dr. Marchand had no opportunity to make any autopsies, though death was not unfrequent. It is hereditary; he has seen five generations pellagrous.

At the session of the Academy of Sciences on the first instant, M. Mandl, the microscopist, read an interesting memoir on the composition of the tartar encrusting the teeth, and the mucous of the mouth. The result of his observations is, that the tartar of the teeth is not a deposit of calcareous matter from the saliva, or a peculiar secretion, but a mass of calcareous skeletons of infusoria, agglutinated by dry mucus, in the same manner as some soils are composed, according to the researches of Ehrenberg, almost entirely of fossil infusoria. M. M. states that if a little mucus taken from between the teeth, is placed in a drop of warmed distilled water, by the aid of a power of 400 or 500 a crowd of infusoria will move about in all directions. Their form is identical with the form described by authors as *vibrios*, and have great analogy with the *vibrios-bagnettes*. Leeuenhoëck first saw these animals in the secretions from mucous surfaces, and described them These infusoria were particularly observed in the mucus taken from the mouths of persons fasting, and constitute also a large part of the mucous coatings of the tongues of dyspeptics. If a portion of concrete tartar of the teeth be placed in a drop of water for twenty or thirty minutes, and put between two glasses, it will be seen that the tartar is composed of dead infusoria; the quantity varies very much. These infusoria are provided with a calcareous covering, since tartar, which is composed chemically of calcareous salts, is made up principally of vibrios.

GALLIC ACID IN MENORRHAGIA.

Professor Simpson stated, that for the last year he had employed gallic acid in some cases of menorrhagia with the most successful results. Like all the other remedies directed against that disease, it had also occasionally failed in his hands. Some of the cases which had completely yielded under its use were of an old standing and aggravated description. He gave it during the intervals, as well as during the discharge, in doses of from ten to twenty grains per day made into pills. It had this advantage over most other anti-hemorrhagic medicines, that it had no constipating effect upon the bowels. He was first induced to use it from finding a case of very obstinate menorrhagia get well under the use of Ruspini's styptic, after many other remedies had utterly failed, and from it being alleged that gallic acid was the active ingredient in that styptic. He suggested whether the anti-hæmorrhagic properties of some of our astringent drugs may not depend upon the gallic acid as much, or more than upon the tannin which they contain, or upon the tannin becoming changed into gallic acid within the body.—*Edinburgh Monthly Journal.*

[In the Ed. Med. and Surg. Journal for July, Dr. Stevenson reports several cases of uterine hemorrhage successfully treated by gallic acid.]

RETROSPECT OF THE MEDICAL SCIENCES.

MORBID STATE OF THE FUNCTION OF THE SKIN IN INSANITY.

The function of the skin is frequently badly performed in insanity. The peculiar smell which some madmen have I have often heard spoken of by those who have had much experience in these cases, and I always attributed it to the uncleanliness of the patient, but since my attention has been more particularly drawn to it, I think that the peculiar odour is due to the disease; when it exists, however, it is a very unfavourable sign; the only thing I can compare it to is the smell of a person just prior to dissolution. Baths of all descriptions have very properly been recommended to ensure the due performance of this important function. In the hospital we employ hot and cold baths, the hip bath, the shower bath, pediluvia, and the douche. The tepid bath is of great service in subduing irritability and excitement. It is sometimes necessary that the patient should remain in for an hour and a half, or two hours. Ice or cold lotions to the head should be applied at the same time; it may be necessary to repeat it every day, sometimes twice daily, till some effect is produced.—*Dr. Sutherland, in Prov. Med. Journ.*

UNHEALTHINESS OF LIVERPOOL, AND ITS CAUSES.

We take this opportunity of expressing our satisfaction at the talent and unflinching honesty with which Dr. Duncan, in his pamphlet on the "Physical Causes of the High Rate of Mortality in Liverpool," careless of bad or good report, has exposed the hygienic evils suffered by the townspeople of Liverpool, who are greatly his debtors on that account, and who will by-and-by acknowledge the fact.

The comparative tables of mortality in towns which we gave last week, quite confirm what Dr. Duncan has advanced, namely, "that, judging from the annual proportion of deaths to the population, Liverpool is the most unhealthy town in England." Indeed, it cannot well be otherwise,—for, first, *one fourth* of its inhabitants live in courts, mere *culs-de-sac*, with a narrow opening at one end, so close that the wretched tenants can scarcely see the sky, and so filthy, from accumulated excrementitious matter, as to promote, if not generate, malignant fevers; secondly, a *tenth* part of the whole population dwell in cellars, about two-fifths of which are either damp or wet; thirdly, out of two hundred and forty-three streets in Liverpool inhabited by the working classes, only *one-fifth* (in mileage) are provided with sewers; and, fourthly, the density of its population in the district so inhabited is nearly *three times* that of the population in London. Such are, in substance, the statements of Dr. Duncan (founded on authorised returns to the town council) respecting the evils that are incidental to the habitations of the industrious classes in the first port of Great Britain. The reader may make what reflections he pleases on the conduct of a corporation that has until very lately left such glaring defects unremedied. A strict enforcement of the local Act that came into operation last November (very loosely and unsatisfactorily framed, however, in our opinion) should remove the noxious agencies, and so lengthen the average life of the working population.

The physical evils, however, that have been alleged respecting Liverpool—the vicious construction of dwellings, insufficient supply or total absence of out-offices and receptacles for refuse and excrementitious matter, the absence of drains, the deficient sewerage, and the over-crowding of the population, may be charged, in a greater or less degree, against most of the leading "industrial" towns of England and Scotland, as is abundantly proved in the distressing evidence brought before the Commons' Committee on the Health of Towns, and in the very complete Local Sanitary Reports furnished by Drs. Howard, Dehane, Baker, Neil Arnott, and Laurie, and other professional men resident in great towns, to the Poor-law commissioners. Out of a large number of such statements we take a few, at random, to illustrate our meaning. Dr. E. Knight says, respecting Stafford:—

"Those parts of the town inhabited by the lower classes are without drainage, and the houses built without any regard to situation or ventilation, constructed (with usually only two small rooms) in a manner to insure the greatest return at the least possible outlay, and without any provision made for refuse dirt and excrementitious matter, which, as the least trouble, are thrown down in front of the houses, and left to putrefy and diffuse a constant malaria."—*Local Sanitary Reports*, p. 225, *from London Lancet*, Aug. 12, 1843.

ANTAGONISM OF PHTHISIS AND INTERMITTENT FEVER.

At the sitting of the Royal Academy of Medicine, Paris, May 23d, communications were read from MM. Casimir Broussais, Bonnefonte, Michel Levy, &c. relative to the comparative non-prevalence of tubercular consumption in Algeria. According to M. Broussais the mortality from phthisis among the civil population of that country is only 1 death in 20, while in Paris it is 1 in 5; the deaths from phthisis among the European inhabitants of Algiers being 1 in 15; those among the Jews 1 in 56; and among the Arabs and Turks 1 in 20, as far as could be ascertained. In combatting the objection that individuals dying there from fever and dysentery might, had they lived, been subsequently carried off by phthisis, M. Broussais adds, that "tubercles, even in a crude state, are never found, in Algiers, in patients dying of any other disease than consumption." These remarks are in accordance with what was stated in a previous report to the Academy by M. Boudin, who says, however, that the comparative indemnity from tubercular phthisis in Algeria prevails only on the sea-coast, and where this is of a marshy nature. Where intermittent fever is frequent, phthisis does not exist. Among the due prophylactic measures against the latter disease is, therefore, the sending patients liable thereto into localities where intermittents prevail. (Assuredly, if individuals die of ague they are effectually preserved against tubercular consumption.) The isles of Hyeres and the neighborhoods of Pisa and Rome, in which marshes and low grounds are plentiful, are said to be as eligible for consumptive patients as they are liable to bring on intermittent fevers in other persons. Similar remarks apply to the Ionian islands, the shores of the Morea, the vicinity of Cadiz, the province of South Holland, the lower parts of Lancashire, and some other English counties, &c. The observations of MM. Bonnefonte and Levy tend to oppose the doctrine of antagonism between intermittents and phthisis. The former says that the conclusions of M.

Boudin are not borne out by statistical research, for that at Rome the number of persons dying of phthisis is in a ratio nearly equal to that prevalent at Paris. There the proportion is 1 to 3.41 of the deaths, while at Rome it is 1 to 3.44. M. Bonnefonte, however, admits that, to whatever cause it may be owing, the climate of Algiers seems to be highly suitable to the consumptive; for the mortality there from phthisis, among the military force, is only 1 to 19.55 of the total deaths, and 1 to 17.1 in the civil population. Constantine, Medeah, and the other towns in the same regency, appear to share in this indemnity. M. Levy asserts that Strasbourg, surrounded by marshes, is subject to the prevalence of both consumption and intermittent fever, and that he has met with various instances of phthisis in the marshy lands of both Corsica and Greece. But with respect to the prevalence of the two maladies at Strasbourg, it was advanced by M. Boudin, at the next sitting of the Academy, that, while acknowledging the prevalence of both at that place, the localities of their origin appeared to be different, one being endemic only in the marshy country without the walls, and the other in the citadel alone.—*Lon. Lancet, from Bull. de l'Acad. Royale.*

EXHALATION OF CARBONIC ACID FROM THE BODY.

Professor Scharling, of Copenhagen, recently made some experiments to ascertain the quantity of carbonic acid exhaled from the human frame by the lungs and surface of the skin in twenty-four hours. The method he employed was the following:

The subjects of experiment were confined in an air-tight box, wherein they were perfectly at ease, being enabled to speak, eat, sleep, or read, without inconvenience; a constant current of atmospheric air was admitted into the box, and the deteriorated gases abstracted by means of an air-pump. The air withdrawn was conducted into a proper arrangement of bottles, some containing sulphuric acid, others a solution of caustic potash. The quantity of carbonic acid, both previously and subsequent to each operation, was carefully ascertained by being received into three graduated tubes. The results were as follows:

The professor himself, aged thirty-five years, exhaled 219 grammes, or 7.7 ounces avoird. during twenty-four hours, seven of which were spent in sleep; a soldier, twenty-eight years of age, exhaled 339.728 grammes—8.15 ounces; a lad of sixteen, 234.379 grammes—7.9 ounces; a young woman, aged nineteen, 165.347 grammes—5.83 ounces; a boy, nine and a half years old, 133.126 grammes—3.069 ounces; a girl, ten years old, 125.42 grammes—4.42 ounces. In the two last, the period allotted to sleep was nine hours.

From these experiments Professor Scharling deduces, that males exhale more carbonic acid than females, and children comparatively more than adults. He also finds that less of the gas is given off during the night than during the day, and that in certain cases of disease, which he does not specify, less carbonic acid is formed then during the healthy state.—*Ibid, from Phil. Mag.*

POPULATION OF BELGIUM.

The census of this (relatively) most populous country in Europe for 1842, is, we believe not yet published. At the end of 1841 its eighty-six towns contained a population of 1,006,117, and its rural districts 3,111,485 persons; total, 4,117,602. Births in 1841, 37,222 in the towns, and 106,438 in the other communes. Deaths, 30,391 in the former, and 72,227 in the latter. Marriages, 28,963. The number of females, as usual, surpassed that of the males; and the number of widows was double that of widowers. As many males were below as above 23, and as many females below as above 25 years of age. The number of males between 20 and 50 amounted to 778,381.—*Ibid, from Echo du Monde Savant.*

M. PELIGOT ON THE CHEMICAL COMPOSITION OF TEA.

At the sitting ef the Academy of Science, July 17th, M. Peligot read a paper on the chemical composition of tea. As this substance (says he) contains more nitrogenised matters than any other substance used as food (?), it may be considered an article of diet of high importance. On instituting a comparison between ordinary sugared tea and broth of moderate richness, M. Peligot has arrived at the following conclusions:—The ordinary broth of the Dutch East India Gompany's service, as analysed by the French academicians, has been found to contain, in a quart, 15 grammes (nearly half an ounce) of soluble organic matters, and 9 grammes (2¼ drachms) of soluble inorganic matter (salt, &c.). The presumed quantity of nitrogen in the organic matters was not determined by the academicians, but M. Peligot estimates it at about eight per cent., which would give about eighteen grains by weight in a litre or quart of broth. Tea made with five drachms to the quart of water and sugared, gave the following results:—Dry residue of infusion of tea, 1¾th drachms; sugar, 6½ drachms. These products comprise about fifteen grains of *theine*, and four and a half grains of nitrogen. Thus, if broth be the richer in nitrogen, tea-infusion (with sugar!) contains solid matter in greater quantity; and tea may, therefore, be not only an excitant, but an article of considerable nutrient quality.—*Lancet.*

MEDICAL practitioners are cautioned against a *spurious preparation of Mercury*, presented in the form of a yellow powder, which is at present being sold for mixing with ointment, to produce an imitation of the *ung. hydr. nitr.* of the Pharmacopœia. The preparation (as the *Chemist* argues) bears the mark of fraud in its very name. It is called *subnitrate* of mercury; whereas, in the ointment, as made according to the direction of the Pharmacopœia, "It is quite evident that a *super*-salt, with a large excess of acid, and not a subnitrate is produced. The peculiar changes which the metallic solution and the fatty matters undergo, are but imperfectly understood, but it has been generally supposed that intimate combination takes place—that a nitrate of the peroxide of mercury remains in close connection with the oil, &c., while the latter are partly oxidated, and elaïdate of the oxide of glycerule, and other new compounds result, and in the newly made ointment a little free acid is also present. The spurious preparation in question possesses the quantity, neither of mercury nor of nitric acid, employed in the preparation of the *ung. hyd. nitr.*, and is wanting in many of its most valuable properties.—*Ibid.*

A GERMAN practitioner strongly recommends spirit of ammonia as a local application to bruises, contusions, &c., as a valuable resolutive agent, capable of fulfilling all the objects for which ordinary refrigerants are used.—*Ibid.*